

# Rental Assistance Demonstration (RAD): Physical Condition Assessment Statement of Work and Contractor Qualifications

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## Overview:

The RAD Physical Condition Assessment (RPCA) report has three parts:

**Part 1: PCA Report Comparing Traditional and Green Requirements** – It is the traditional PCA that identifies repairs necessary in the first year following restructuring and the repairs and replacements during the next 20 years; it only offers “traditional” and “green” components that meet local building code; it estimates costs using both “traditional” and “green” principles; and it provides comments on the benefits (financial and otherwise) of the green alternative.

**Part 2: Energy Audit** – It evaluates how energy and water is used at the property. It documents prudent utility-related improvements (water and energy) to the property, the cost of the improvements, and a simple financial payback analysis (however, note that a more sophisticated analysis is available for systems with multiple components with varying estimated useful lives and where the full lifecycle cost analysis is useful). It includes an initial assessment of potentially viable alternatives for generating electricity, heating water, and heating and cooling the conditioned space at the building.

**Part 3: Utility Consumption Baseline** – It contains data on all utility usage at the property, both tenant-paid and owner-paid, and including all common areas for a full 12-month period. It establishes a baseline to allow for benchmarking, and for future measurement of consumption and costs. As such, the utility baseline creates a whole building consumption profile, addressing missing utility data, vacancies, and weather patterns, in achieving its aim of establishing that standard on which future consumption can be compared.

The RPCA contractor may complete any of the components for which it has the necessary qualifications; otherwise, the contractor may subcontract to others who have the necessary qualifications. The RPCA Contractor must integrate and evaluate the findings and recommendations and incorporate all three components into one report.

## **PART 1. PCA REPORT COMPARING TRADITIONAL AND GREEN REQUIREMENTS**

**1. Qualifications:** The contractor must

- A. Have training and experience to evaluate building systems, health, and safety conditions, and physical and structural conditions, and to provide cost estimates for maintaining,

rehabilitating, or improving deficiencies, using both traditional and Green principles. Must also have environmental expertise, as inspection will include environmental issues as well. Must have any required licenses.

- B. Have the designation of Leadership in Energy and Environmental Design Accredited Professional (LEED AP), in either the United States Green Building Council's LEED New Construction and Major Renovation or the LEED Existing Building Maintenance and Operations examination tracks, or an equivalent designation.
- C. Have completed 10-hours of education in the last calendar year in the areas of Green Building, Sustainability, Energy Efficiency, or Indoor Air Quality.
- D. Have knowledge of the requirements for the "green building" standard, if any, identified by the owner, which may include: Enterprise Green Communities, LEED-H, LEED-H Midrise, LEED-NC, ENERGY STAR New Homes, ENERGY STAR Multifamily High Rise, EarthCraft House, EarthCraft Multifamily, Earth Advantage New Homes, Greenpoint Rated New Home, Greenpoint Rated Existing Home (Whole House or Whole Building label), and the National Green Building Standard (NGBS) or other industry-recognized green building standard deemed acceptable by HUD in its sole discretion.
- E. Have acceptably completed written evaluation reports for similar types of multifamily rental housing projects in similar physical condition and age in the subject market or in similar areas, preferably including two (2) or more buildings that were receiving Section 8 or public housing assistance when the report was prepared.
- F. Have an acceptable record of performance with HUD. Not be under suspension or debarment by HUD, or involved as a defendant in criminal or civil action with HUD.
- G. Have produced reports that are well regarded in the marketplace in terms of content, timeliness and responsiveness. The contractor should have this personal experience, not just the company.
- H. Have the capacity to complete the project inspection and prepare the report in a time frame acceptable to the Lender/Owner<sup>1</sup>.

**2. Statement of Work:** The contractor shall

- A. Perform a Physical Condition Assessment (PCA) for each asset specified by the Lender/Owner and report the findings.
  - (i) The report shall be prepared according to the Fannie Mae document: "Physical Needs Assessment Guidance to the Property Evaluator" (Exhibit 1), except as modified herein. This standard is meant to meet or exceed ASTM E 2018-08,

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<sup>1</sup> Throughout this Statement of Work and Contractor Qualifications document, "Lender/Owner" is used to describe the party ordering, reviewing, and accepting the RPCA (the client for the RPCA contractor). If the owner is pursuing financing as part of the RAD conversion, then a Lender is the client. If not, then the Owner is the client. All RPCAs are subject to HUD's review and acceptance.

Annex 1.1 concerning multifamily properties as well as Appendix XI.1 concerning qualifications, XI.2 concerning verification of measurements and quantities based on as-built drawings when available or field counts or measurements when necessary, XI.3 concerning service company research. Appendix XI.5 concerning the recommended table of contents is also recommended.

- (ii) The report shall include color photographs and a detailed narrative describing the property's exterior and interior physical elements and condition, including architectural and structural components, and mechanical systems.
- (iii) The Contractor shall conduct and document site inspections of enough dwelling units to be able to formulate an accurate estimate of repair, replacement and major maintenance needs and all office, community space, and common areas. In no event shall the inspection be of less than 25% of occupied units, and 100% of all vacant units and common areas.

- a. In some cases, depending on the size and condition of the Project, all or nearly all units will need to be inspected by the Contractor.

- b. In other cases, a lesser number of units may need to be inspected by the Contractor. But in no event shall the number of units be less than specified in subparagraph (iii) above.

- c. The Department expects that appropriate statistical sampling methods and techniques will be used by the Contractor to reach conclusions about repair needs.

Units shall be randomly sampled while taking into consideration occupied and unoccupied units and the unit size mix, i.e. one bedrooms, two-bedrooms, etc. If a significant number of units are found to be in poor condition, the Lender/Owner may require that additional units be inspected. The Contractor may also determine that additional units and/or common areas require inspection to fully achieve the objective of considering green building principles, and if so, must coordinate the parameters of the inspection with the Lender/Owner.

- (iv) The inspection must document individual building write ups for all multi-building complexes,
- (v) For older structures the Contractor/ and lender should consider forensic investigations of primary building systems, including but not limited to structural, building envelope, conveyance, mechanical, electrical and plumbing systems, where visual or non-invasive examination alone may not be sufficient to support a conclusion about the condition or remaining useful life of system components. While recognizing that age and condition of structures are not always related, a guideline for use of forensic methods is structures 30 or more years of age. It is the responsibility of the lender to assure that the Contractor employs investigative methods appropriate to the age, condition, physical composition of the property and the local environment.

When undertaken, a forensic examination should result in a written report, attached to the PCA, which report should include at a minimum the following:

- a. A statement of the examiner's particular experience, education, technical or

trade certifications or other qualifications establishing the examiner's expertise relevant to the matter examined.

- b. A description of the physical component(s) or system examined including the portions, quantities, and/or locations examined and the relevant products and materials found installed.
  - c. A description of the trade or industry recognized techniques, tests or analytical methods of examination used.
  - d. A summary of the estimated age, condition, and serviceability of the products, materials or system examined.
  - e. The examiner's recommendation of any repairs and/or replacements.
  - f. The examiner's estimate of the remaining useful life of the system or component assuming any recommended repairs or replacements are completed.
- (vi) Using the RPCA model<sup>2</sup> provided by the Lender/Owner, the Contractor will complete the Component Replacement Summary, Utility Types and Rates, Cap Needs Input, Utility Savings, cell D28 of the Water Savers, Utility Baseline – Summary, Utility Baseline – Monthly, and the Reserves 20 Year Schedule worksheets, considering the factors described below (note that completion of the RPCA model worksheets overlaps with the Energy Audit and Utility Consumption Baseline statements of work, Parts 2 and 3 herein). By completing the herein named worksheets in the RPCA model, the 20 Year Schedule and Detailed 20 Year Schedule worksheets will automatically be populated. The Contractor is to review that worksheet to ensure the data inputs on the other worksheets are generating the desired results. The Water Savers worksheet is an optional approach to estimating water savings, but **cell D28 must be completed** (and it links to the Utility Savings worksheet).
- (vii) The report shall include:
- a. **Critical items:** Identify in detail, and report immediately to property management and the Lender/Owner, any repair item(s) that represents a critical repair.  
Critical repairs include:
    - 1. Remedies for exigent health and safety hazards or code violations;
    - 2. Correction of conditions that adversely affect ingress or egress;
    - 3. Correction of conditions preventing sustaining occupancy;
    - 4. Correction of accessibility deficiencies.

It is the lender's responsibility to assure that accessibility requirements are accurately applied to projects by the Contractor with knowledge of Federal and,

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<sup>2</sup> The RPCA model is available at [www.hud.gov/RAD](http://www.hud.gov/RAD)

where applicable, state and local requirements. These requirements are:

- (1) The Fair Housing Act design and construction requirements apply to all multifamily housing built after March 13, 1991.
- (2) Section 504 of the Rehabilitation Act of 1973 applies to all Federally assisted programs, facilities and housing.
- (3) The Americans with Disabilities Act of 1990 (ADA) applies to public accommodations and commercial facilities and to any such portion of a multifamily property.
- (4) Summary Table of Applicable Federal Accessibility Requirements

ACTIVITY & YEAR BUILT	MARKET RATE APARTMENTS	AFFORDABLE (not assisted, e.g. LIHTC's)	FEDERALLY ASSISTED**
Projects built (1st occupancy*) after 3/13/1991	Fair Housing Act Requirements	Fair Housing Act Requirements	Fair Housing Act & 504/UFAS Requirements
Projects built from 7/11/1988 to 3/13/1991	None	None	504/UFAS Requirements
Sub Rehab of projects built after 7/11/1988	None	None	504/UFAS Requirements (load bearing wall exception)
Refinance of projects built prior to 7/11/1988***	None	None	504/UFAS Requirements (load bearing wall and financial/administrative burden exceptions)
All Public Accommodation	ADA	ADA	ADA & 504 UFAS

\*1<sup>st</sup> occupancy means a building occupied for any purpose, not just for housing.

\*\*\*"Federally assisted" projects include those financed or assisted by Project Based Vouchers, 202/811, HOME, HOPWA, Rent Supplements, 236, TCAP, BMIR, etc.

- (5) State and Local Accessibility Laws. The Fair Housing Act does not preempt state and local government measures affording persons with disabilities greater access than is required by the Fair Housing Act and some state and local governments do apply more stringent requirements. When state or local requirements exceed the Fair Housing Act design and construction requirements, the former prevail to the extent of such excess.
- (6) Adaptable Does Not Mean Deferrable. A common misinterpretation of the Fair Housing Act design and construction requirements holds that the term "adaptable" contemplates a delay or deferral of the time when "features of adaptable design" required by the statute or regulations may

be completed. This is inaccurate. The “features of adaptable design” described in the Fair Housing Act design and construction standards are required at original design and construction. Adaptable for purposes of Section 504 is defined at 24 CFR 8.3 and contemplates limited future physical changes to meet specific needs of particular persons with disabilities.

- b. **Repair/Rehab items (Short Term Physical Needs):** Identify and estimate the cost of the repairs, replacements, and significant deferred and other maintenance items that will need to be addressed within 12 months of closing (do not include items that are not broken but may need replacement in the near future). The items evaluated (both recommended and not recommended) are explained in the narrative report and the recommended items are documented in the Cap Needs Input worksheet of the RPCA model. That data input automatically generates the rehab escrow needs that appear in column B of the 20 Year Schedule worksheet of the RPCA model. Review column B of that worksheet to ensure the data input generated the correct result.
- c. **Market Comparable Improvements:** After discussion with the Lender/Owner and the Lender’s appraiser, the inspector may include repairs or improvements that are necessary for marketability in the list of Repair/Rehab needs. The repairs/improvements identified should be those necessary for the project to retain its original market position as an affordable project in a decent, safe and sanitary condition (recognizing any evolution of standards appropriate for such a project). The project should be able to compete in the non-subsidized market on the basis of rents rather than amenities. Where a range of options exists, the least costly options for repair or rehabilitation should be chosen, when both capital and operating costs are taken into consideration.
- d. **Long-term Physical Needs/ Reserve Items:** Identify and provide an estimate of the major maintenance and replacement items that are required to maintain the project’s physical integrity over the next twenty (20) years. (Note that the Fannie Mae Guidance to the Property Evaluator only requires an 18-year assessment maximum). The items evaluated (both recommended and not recommended) are explained in the narrative report and the recommended items are documented in the Cap Needs Input worksheet of the RPCA model. That data input automatically generates the 20 Year Schedule worksheet of the RPCA model. Review that worksheet to ensure the data input generated the correct result.
- e. **Reserve Costs.** The Contractor shall estimate the Initial Deposit to the Reserve for Replacement Account and the Annual Deposit to the Reserve for Replacement Account based on the cost of “Near Term” replacement and major maintenance needs of the Project.
- f. **Environmental Concerns:** This applies to all existing properties constructed prior to 1978 which have not been demonstrated to be LBP- and/or asbestos-free. For projects that contain LBP and/or asbestos, the Contractor is responsible for engaging the services of a qualified LBP and/or asbestos abatement contractor(s) to prepare a scope of work for the abatement of LBP and/or asbestos. Where the

scope of abatement work consists of permanent enclosure or encapsulation, but not removal, of LBP and/or asbestos, the qualified abatement contractor(s) must also prepare, separate from the scope of abatement work, an Operations and Maintenance (O&M) Plan for LBP and/or asbestos. The O&M Plan contains ongoing maintenance activities for LBP and/or asbestos, to be followed for as long as the LBP and/or asbestos remains in place. All abatement work and ongoing maintenance activities for LBP and/or asbestos shall conform to the following Regulatory requirements:

- (1) For LBP, 24 CFR Part 35;
- (2) For asbestos, 40 CFR Part 61.

The report shall provide a description of directly observed potential on-site environmental hazards and include a completed Form 4.4 Environmental Restrictions Checklist (see Exhibit 2).

- g. **Green Building Principles:** An objective of the report is to identify all opportunities to improve energy efficiency, maximize water efficiency, use re-used and recycled materials where practical, safeguard the indoor air quality of the property, be of less harm to the environment generally, and remove/ re-use replaced materials and construction debris appropriately. The Contractor is required to evaluate all components in the building, all building systems, and all components on the property, and the property itself, to identify all opportunities to achieve the stated objective. **The Contractor is expected to consider the most promising types of improvements being used generally in applicable green buildings, to identify all alternatives considered, to provide a justification for the green alternative recommended and a brief explanation of why the non-selected alternatives are less appropriate for the subject property.** Each line item must identify the:
    - (1) costs of the traditional repair/replacement to meet local building code, as applicable, and the alternative using green building principles;
    - (2) cost estimate for both the traditional and green approaches; and
    - (3) expected benefits of the green alternative, both financial and non-financial.
  - (viii) The report shall identify any physical deficiencies as a result of:
    - a. a visual survey;
    - b. a review of any pertinent documentation; and
    - c. interviews with the property owner, management staff, tenants, interested local community groups and government officials, where appropriate.
  - (ix) The report shall include the Contractor's professional opinion as to whether tenant relocation is necessary to complete the recommended scope of work for rehabilitation.
- B. The RPCA must also include the following subcomponents:

- (i) Acknowledgements (who prepared report, the preparer's qualifications or a certification that the preparer meets the qualifications required in Part 1.1, when report was prepared, who received report, and when report was reviewed).
- (ii) Appendices (color photographs, site plans, maps, etc.).

C. In addition, the contractor shall:

- (i) Recommend any additional professional reports needed, for example, to determine the presence or degree of structural defects, or to complete additional investigation into an environmental issue. The Lender/Owner will be responsible for obtaining such reports.
- (ii) If requested by the Lender/HUD, the RPCA Contractor will review the requirements of a particular "green building standard"<sup>3</sup> and include in the RPCA its professional opinion on whether the rehabilitation recommended in the RPCA will meet the requirements of the particular "green building standard".
- (iii) If the services of a subcontractor were secured to inspect the property and complete the report, the contractor shall review the inspection for quality, consistency, and agreed upon format and conformance with these requirements.
- (iv) If requested by the Lender/Owner, attend a formal kick-off meeting to clarify the requirements and scope of the work to be performed.

### **3. Deliverables**

- A. A draft narrative report and RPCA model (with completion of these worksheets: Component Replacement Summary, Utility Types and Rates, Cap Needs Input, 20 Year Schedule, Detailed 20 Year Schedule, Rehab Escrow Needs, Utility Savings, **at least cell D28** of Water Savings, Utility Data Collection, and the Reserves 20 Year Schedule) shall be submitted electronically, as instructed by the Lender/Owner, for review prior to completion of the final report.
- B. The Lender/Owner will review the draft deliverables and discuss any necessary corrections with the Contractor that are necessary for the drafts to be finalized.
- C. The final narrative report shall be completed in the number of originals and copies requested by the Lender/Owner. It will also be submitted electronically along with the RPCA model, as instructed by the Lender/Owner.

**NOTE:** The final deliverable from the RPCA contractor shall consist of two files:

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<sup>3</sup> Must be an industry-recognized standard for green building, such as the Enterprise Green Communities Criteria, LEED-H, LEED-H Midrise, LEED-NC, ENERGY STAR New Homes, ENERGY STAR Multifamily High Rise, EarthCraft House, EarthCraft Multifamily, Earth Advantage New Homes, Greenpoint Rated New Home, Greenpoint Rated Existing Home (Whole House or Whole Building label), and the National Green Building Standard (NGBS) or other industry-recognized green building standard in HUD's sole discretion.



- 1- PDF file, including the narratives from all three parts of this statement of work (PCA, Energy Audit and Utility Consumption Baseline.)
- 2- EXCEL file of the completed RPCA model.

## **PART 2. ENERGY AUDIT**

### **1. Qualifications:** The contractor shall

- A. Be certified to complete building energy audits by RESNET or BPI (or their training providers), or be a Certified Energy Manager (CEM), or be a State equivalent certified energy auditor, or be a professional architect, or be a registered professional engineer, or be a RESNET certified Home Energy Rater or BPI Certified Building Analyst.
- B. Not be under suspension or debarment by HUD, or involved as a defendant in criminal or civil action with HUD.
- C. Produce reports that are well regarded in the marketplace in terms of content, timeliness and responsiveness. The contractor should have this personal experience, not just the company.
- D. Have the capacity to complete the project inspection and prepare the report in a time frame acceptable to the Lender/Owner.

### **2. Statement of Work**

These requirements are intended to full satisfy and exceed the requirements in the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) Procedures for Commercial Building Energy Audits, Second Edition 2011, Level II guidelines.

- A. An energy audit identifies how energy and water is used in a facility.
  - (i) Data is collected on energy and water use and costs and a physical inspection of the property and energy-related equipment is performed.
  - (ii) The physical inspection reviews equipment and space conditions, past maintenance schedules, remaining useful life, and system performance, along with building envelope characteristics and conditions.
  - (iii) Physical inspection may also consider indicators of performance issues such as leaking or soiled heat exchangers, high humidity, poor space temperature control, and comfort concerns. Some of these characteristics may be indicators of improperly sized heating or cooling equipment.
- B. An energy audit analyzes utility costs of the existing property, including separate rates, if any, for owner and tenant accounts, such as for electricity. Utility data is trended and benchmarked against similar properties with like heating and cooling requirements, and

used to provide estimates of energy and water savings that may be gained by implementing cost effective conservation measures.

- C. An energy audit provides a prioritized list of recommended cost-effective energy and water efficiency improvements to reduce utility costs.
- (i) Cost-effective energy and water efficiency improvements are energy or water conserving measures whose estimated utility savings exceed the installed cost of the improvement over the measure's useful life.
  - (ii) Recommendations are based on engineering and economic analysis and consider factors such as operating hours, equipment efficiency, and building and occupant energy and water demand characteristics.
  - (iii) Costs are generally developed through industry norms or available historical project information.
- D. Insulation in attics, walls, basements, floors, and ducts for heating and cooling circulation, should, at a minimum, be upgraded to current local building code for new construction, unless prevented by physical obstructions. Additional insulation beyond code should be recommended if cost-justified.
- E. In addition, the energy audit includes a recommendation on whether additional caulking and sealing is a cost-justified expenditure.
- F. An energy audit report includes the following:
- (i) Current energy, water and sewerage usage and costs (kilowatt-hour, therms, ccf, utility cost) input in the RPCA model. NOTE: This requirement includes all utility usage at the property, both tenant-paid and owner-paid, and all common areas.
  - (ii) Evidence that the Contractor used the Air Conditioning Contractors of America (ACCA) Manual J guide or another recognized methodology to size the recommended heating and cooling systems. The sizing shall consider other energy-related improvements being made to the property, including additional insulation, energy-efficient windows, etc. The Lender/Owner may request the Contractor prepare several calculations based on possible improvements or may contact the Contractor subsequent to the completion of the initial calculation and ask for a revision based on a specific set of improvements.
    - Exception: There are two exceptions to the requirement to complete a load calculation to appropriately size the heating and cooling systems:
      - a. When the existing units are already the smallest available and there are no known property management or tenant complaints indicating that the existing systems may be inadequate. To justify this exception, the Contractor must inquire of the site property management and of any tenants encountered during the inspection of units, and not receive comments that would cause the Contractor to question the adequacy of the existing systems.

- b. When the existing units use electric baseboard heat and conversion to another heat system has been determined to be infeasible. To justify this exception, the Contractor must consider any comments about unit heating received from inquiring of the site property management and of any tenants encountered during the inspection of units and state why conversion to another source is infeasible.
- (iii) Evidence that the contractor analyzed the existing size of hot water heaters and analyzed the appropriate efficient replacement size using First Hour Rating (primarily for individual tenant hot water heaters) or other professionally recognized sizing tools with a goal of providing sufficient but not excess capacity.
- (iv) Evidence that the contractor inspected the ductwork for leakage and recommended and priced appropriate repairs. HUD's objective is to identify energy-saving opportunities and is relying on the contractor's professional judgment as to the extent of inspection, testing, cleaning and repair that is warranted for the specific property. If the ducts are accessible, the contractor is to conduct a visual inspection and make recommendations for repair of any loose/ broken connections or other leaks. If the ducts are not accessible, the contractor is to provide an opinion on the likely cost-benefit analysis of repairing the ducts and the approach recommended to do so (including use of an aerosol-based product).
- (v) Completed "Utility Types and Rates" worksheet in the RPCA model provided by the Lender/Owner.
- (vi) Completed "Utility Savings" worksheet in the RPCA model provided by the Lender/Owner.
- (vii) Completed "Water Savers" worksheet with **at least cell D28** being populated (otherwise this worksheet is an optional approach to estimating water savings);
- (viii) Prioritized list of recommended energy efficiency improvements. At a minimum, in evaluating recommended improvements, the contractor evaluates and comments on:
  - a. Wall, ceiling and basement (if applicable) insulation – describe existing, cite the local code for new construction
  - b. Exterior doors – weather stripping, caulking, insulation characteristics, possible needed replacement and standards
  - c. Storm doors (where they currently exist) – weather stripping, caulking, insulation characteristics, possible needed replacement and standards
  - d. Dishwashers (where they currently exist) – efficiency standard, age, replacement options
  - e. Windows/sliding glass doors – considering age, weather stripping, caulking, air conditioning sleeves
  - f. HVAC – age, size and rated efficiency of units, age and type of thermostat
  - g. DHW – age, size and rated efficiency of units, insulation, temperature setting and set-backs, appropriate efficiency and size for replacement units

- h. Refrigerators – age, size, rated efficiency of units, potential replacements
  - i. Water – flow rate of shower and faucets, hot water temp at tap, hot water pipe insulation, toilet tank size
  - j. Ventilation – kitchen and bath ventilation (recirculating or outside), appropriate size for replacement units
  - k. Apartment lighting – existing lighting methods, over-lighted conditions, conversion to CFL bulbs or fixtures
  - l. Lobby, common area, corridor – exterior doors (see above), existing lighting methods, lighting (sufficiency/excess, conversion to CFL bulbs and/or fixtures, T-8 (or smaller) electronic ballast fluorescent, LED exit light and automatic control potential)
  - m. Exterior lighting (including parking area) – existing number, type, sufficiency/excess illumination levels and efficiency of lighting type, conversion potential to more efficient lighting type, automatic controls
  - n. Central Plant Boilers/Hot water - efficiency, age, potential for combined heat and power (CHP), set backs
  - o. Laundry Area – identify if leased or owned, number and type of appliances, size, age, efficiency rating
  - p. Other commercial or office space – same evaluation
  - q. Possibility of cost effective change in fuel/ heating system type
  - r. Evaluation of rate options, if any, with the utility companies for different site uses, e.g., residential/ commercial rates, peak load management rates.
- (ix) An initial assessment of the potential feasibility of installing alternative technologies for electricity, heating and cooling systems, and hot water heating (collectively called Green Energy Technologies) at the property. The auditor is to comment specifically on each of the following:
- a. Photovoltaic for electricity
  - b. Solar thermal for hot water heating
  - c. Wind turbine
  - d. Combined heat and power
  - e. Geothermal heat pumps, and
  - f. Fuel cells.

As an initial assessment of potential feasibility, the auditor's comments are to conclude and justify, for each of the six technologies, whether further study is recommended. Specifically, the auditor is to state that the property: is a potentially viable candidate and a feasibility study is recommended or is not a viable candidate and further study is not recommended.

NOTE: HUD expects a few sentences of discussion for each of the six technologies. For example, "Combined heat and power: The property has less than 80 units (a rule of thumb for minimum number of units for feasibility) and does not have a central power source. Further study is not

recommended.” Another example, “Geothermal heat pumps: The property has sufficient acreage to drill wells and uses enough energy for heating and cooling that this technology may be feasible. Further study is recommended.”

- (x) Installed cost estimates for recommended energy and water efficiency measures.
- (xi) Expected useful life of recommended energy and water conservation measures.
- (xii) Annual energy and water saving estimates (consumption and cost reductions). In considering cumulative savings, the auditor should consider how measures may interact and be realistic about the overall portion of existing utility use that might be conserved.<sup>4</sup> The utility savings estimates will be contained in the Utility Savings worksheet of the RPCA model (note that the auditor may use the optional “Water Savers” worksheet of the model but **must complete** cell D28 of that worksheet for the total estimate of water savings).
- (xiii) Simple payback period in years for each evaluated measure, whether recommended or not. If more than one measure was evaluated, include a brief discussion of all measures evaluated and a justification for the one recommended in the narrative report. Include the recommended measure in the Cap Needs Input worksheet of the RPCA model.

G. The RPCA should also include acknowledgments (who prepared report, the preparer’s qualifications or a certification that the preparer meets the qualifications required in Part 2.1, when report was prepared, who received report and when report was reviewed).

H. In addition to the above, the auditor shall:

- (i) Recommend any additional professional reports needed (including, for example alternate energy system feasibility studies, air infiltration tests for energy loss and ventilation needs, blower door tests, infrared imaging, duct blasting, etc.). The Lender/Owner will be responsible for obtaining such reports.
- (ii) If the services of a subcontractor were secured to perform the RPCA, the Contractor shall review the inspection for quality, consistency and agreed upon format and conformance with the report requirements.
- (iii) If requested by the Lender/Owner, attend a formal kick-off meeting to clarify the requirements and scope of the work to be performed.

### **3. Deliverables**

The report and completed worksheets of the RPCA model are made a part of the overall RPCA deliverables submitted by the RPCA contractor. See Part 1, paragraph 3 for instructions on delivering the draft and final narrative reports and RPCA model to the Lender/Owner.

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<sup>4</sup> The installation of individual components, taken individually, may support a certain level of utility savings that will not be realized when all the recommended components are installed as a package. In addition, some components (e.g., the first-time installation of air conditioning) will serve to increase utility usage.

### **PART 3. UTILITY CONSUMPTION BASELINE**

#### **1. Introduction**

- A. Overview: The goal of this statement of work is to establish a twelve month consumption baseline for normalized heating, cooling, lighting, and other electric, gas and water usage (not cost) by property.
- B. Consumption Period for Demonstration Due Diligence: The contractor, in consultation with the owner, will establish a twelve-month consumption period, generally ending just prior to the application to the RAD program and maximizing availability of actual data. The twelve month period covered should be recent and similar for each utility and should conclude prior to any rehabilitation beginning at the property.
- C. Consumption Data Collection: The result will be to understand and document what types of utilities are used, from what sources, how they are used and in what amounts they are used. Information on how utilities are used will come from the owner and RAD Physical Condition Assessment (RPCA) through the Energy Audit. In order to obtain the data, the contractor will receive releases from the owner, including releases the owner has obtained from tenants for tenant accounts so that the contractor can obtain consumption data directly from each utility provider. The owner may also provide actual billing data.
  - (i) For each property paid utility, the releases will be executed by the owner and obtained from the owner by the Contractor.
  - (ii) For tenant paid utilities, the releases will be executed by tenants, obtained from the tenants by the owner, and obtained from the owner by the Contractor. Releases will be requested from tenants who have been in residence 12 months or more and new entrants. For non-metered fuel sources, such as propane or heating oil, the Contractor will obtain releases from the owner to obtain 14 months of billing history from the supplier(s), or if suppliers are not willing/ capable of providing histories, the Contractor will obtain copies of bills from the owner.
- D. Data Ownership: All energy usage data and analysis is the property of HUD.

#### **2. Qualifications:** The contractor shall

- A. Have experience in collecting utility consumption data and in using industry-recognized methods for estimating missing data and normalizing it for weather occurrences and property vacancies.
- B. Not be under suspension or debarment by HUD, or involved as a defendant in criminal or civil action with HUD.
- C. Produce baselines that are well regarded in the marketplace in terms of content, timeliness and responsiveness.

D. Have the capacity to complete the project inspection and prepare the report in a time frame acceptable to the Lender/ Owner.

**3. Statement of Work:** A contractor shall construct a Consumption Narrative Report containing at a minimum:

A. Project identifiers -PIC Number , property name, property location, name of contractor, ownership name and contact information, management agent contact information, if any, etc.

B. For all utilities associated with the property:

- (i) Identify vendors/sources.
- (ii) Identify use for residential: heat, hot water, lighting, a/c.
- (iii) Identify use (generally on separate meters) for non-residential: common/exterior lighting, laundry, office, maintenance shop, commercial (some projects have commercial leases).
- (iv) Identify how the utility is used, for example, central steam boiler, forced air furnaces, heat pumps, window type air conditioners, central air, electric baseboard heat, common area lighting (incandescent or fluorescent, other) exterior lighting (type of lighting device).
- (v) Identify party responsible for payment, owner or tenant.
- (vi) Note any non-metered fuel source usage such as heating oil or propane.
- (vii) Note any observed anomalies regarding rate structure, metering, on-site generating via solar panels, wind turbines, etc.; and
- (viii) To the extent possible and applicable, estimate the commercial and non-residential portion of the use versus the residential use.

C. The Narrative is submitted as a PDF file.

D. Completed Utility Baseline – Summary and Utility Baseline – Monthly worksheets in the RPCA model, including:

- (i) General property information, utility provider information, and a property profile that includes the number of buildings, square footage, vacancy, and number of units.
- (ii) An overall summary of annual utility consumption across the entire property by utility type.
- (iii) An overall summary of annual utility consumption for each utility type and each meter at the property.
- (iv) Monthly utility consumption for each meter at the property.
- (v) For non-metered fuel sources such as heating oil or propane, attach detail for 14 months of consumption, and document how the estimate of twelve month consumption was reached.
- (vi) Adjust the actual consumption (usage) to produce weather-normalized summary consumption (usage). Use appropriate localized weather pattern

- data. Document the weather-normalization calculation in the Narrative. Note that HUD requires both raw and weather-normalized data.
- (vii) Adjust usage, based on available data, to a pro-forma 100 % occupancy by estimating additional use for unoccupied units. (This is in addition to, and complements, estimation for data gaps on occupied units.) This may affect some utilities, like water or electric, more than others, for example if heat is centrally provided.
  - (viii) Establish an optional pro-forma adjustment factor to the consumption for cases where the RAD transaction involves changes in services provided at the property, for example the addition of air conditioning. If requested, supply estimate of utility consumption for the added service.
  - (ix) Supply the completed RAD Utility Consumption workbook in Microsoft Excel, in the format required by HUD.

**NOTE:** The RPCA model also includes instructions for completion of the two utility consumption worksheets in a third worksheet titled, Utility Baseline – Instructions.

#### **4. Deliverables**

The narrative report and completed Utility Consumption – Summary and Utility Consumption – Monthly worksheets in the RPCA model are made a part of the overall RPCA deliverables submitted by the RPCA contractor. See Part 1, paragraph 3 for instructions on delivering the draft and final narrative report and the EXCEL workbook to the Lender/Owner.

#### **Exhibits (available on the RAD website at [www.hud.gov/RAD](http://www.hud.gov/RAD)):**

- 1 Fannie Mae Physical Needs Assessment Guidance
- 2 Form 4.4 Environmental Restrictions Checklist
- 3 Accessibility Law Compliance